

What is claimed is:

1. A medical device for filtering a fluid in a lumen of a patient's body, comprising:

a wire frame comprising a plurality of wires oriented to define a perimeter; and

a fiber matrix secured to said wire frame, said fiber matrix having fibers forming a boundary about each of a multiplicity of pores, said fiber matrix and said wire frame together forming a filter carried by a guidewire with said filter being collapsible prior to deployment, said filter being expandable to extend outward from said guidewire such that said filter engages a wall defining said lumen, said wire frame and said fiber matrix being constructed and arranged to prevent passage of particulate matter while allowing passage of fluid through said pores.

2. A medical device in accordance with Claim 1 wherein the filter is collapsible prior to deployment from a constraining wall.

3. A medical device in accordance with Claim 2 wherein the constraining wall is a catheter.

4. A medical device in accordance with Claim 1 wherein the wire frame is non-metallic.
5. A medical device in accordance with Claim 1 wherein the wire frame is metallic.
6. A medical device in accordance with Claim 5 wherein the wire frame is made of Nitinol.
7. A medical device in accordance with Claim 1 wherein the fiber matrix and the wire frame together form boundaries defining a multiplicity of pores.
8. A medical device in accordance with Claim 1 wherein the filter is self expanding.
9. A medical device in accordance with Claim 1 wherein the filter includes means for expansion.
10. A medical device in accordance with Claim 1 wherein the fibers are formed by an electrospinning process.

11. A medical device in accordance with Claim 1 wherein the fibers are individually applied to a metal frame.

12. A medical device in accordance with Claim 1 wherein the fibers are applied in a flowable state.

13. A medical device in accordance with Claim 1 wherein the fibers are applied in substantially a single strand.

14. A medical device in accordance with Claim 1 wherein the fiber matrix is woven in a regular pattern.

15. A medical device in accordance with Claim 1 wherein the fiber matrix is woven in a random pattern.

16. A medical device in accordance with Claim 1 wherein the wire frame is braided.

17. A medical device in accordance with Claim 1 wherein the size of each pore is less than 100 microns.

18. A medical device in accordance with Claim 1 wherein a percent open area of the filter is greater than 40%.

19. A medical device, for use in a lumen of a human body for preventing passage of particulate matter and allowing passage of a fluid, such as blood, comprising:

a guidewire having an expandable and collapsible filter attached at a distal end, wherein said filter has a collapsed configuration wherein said filter is able to be advanced within said lumen; and

an expanded configuration wherein said filter is expanded outward from said guidewire to engage a wall of said lumen, said filter having fibers defining a plurality of pores, said pores allowing passage of blood and preventing passage of particulate matter therethrough, said filter comprising a metal frame having a plurality of metal wires on which said fibers are spun to form a fiber matrix.

20. A medical device for filtering fluid passing through a lumen in a patient's body, comprising:

a flexible frame including a plurality of wires intersecting to define a perimeter of an open space; and

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a matrix including a multiplicity of fibers extending across said open space to define a multiplicity of pores.

21. A medical device in accordance with Claim 20 further comprising a retainer to hold said flexible frame in a collapsed configuration for insertion into the lumen to be deployed therein.

22. A medical device in accordance with Claim 21 wherein said flexible frame is carried by a guidewire, and wherein said retainer comprises a catheter having a lumen within which the flexible frame, in its collapsed configuration, is received prior to deployment.

23. A medical device in accordance with Claim 20 wherein said plurality of wires intersect to define perimeters of a multiplicity of open spaces, each open space having a matrix including a multiplicity of fibers extending thereacross to define a multiplicity of pores.

24. A medical device in accordance with Claim 23 wherein each of said pores is generally parallelogram shaped.

25. A medical device in accordance with Claim 24 wherein each of said pores is generally square shaped.

26. A medical device in accordance with Claim 24 wherein each of said pores is generally diamond shaped.

27. A medical device in accordance with Claim 23 wherein each of said pores is irregularly shaped.

28. A medical device in accordance with Claim 20 wherein said flexible frame, when deployed, is generally windsock shaped.

29. A medical device in accordance with Claim 20 wherein said flexible frame is made of Nitinol.

30. A medical device in accordance with Claim 29 wherein each of said wires has a diameter of between 0.0015 inches and 0.005 inches.

31. A medical device in accordance with Claim 20 wherein said fibers are electrospun directly onto said flexible frame.